disease is to deplete the transfused marrow cells of T lymphocytes potentially reactive with host antigens. This has been made technically feasible by the availability of monoclonal antibodies reacting with defined lymphocyte populations. In principle, the bone marrow cells are destroyed in the laboratory by exposure to monoclonal antibody and complement, after which the remaining, demonstrably immunoincompetent progenitor cells are infused into the recipient. In one study the incidence of severe graft-versus-host disease was reduced from the 79% obtained with previous methods to 18%.[10] Nevertheless, the period of follow-up was short, and another group using similar methods encountered acute graft-versus-host disease in five of their 10 patients.[11] More studies of this kind are needed with a longer follow-up period. More elaborate ways of using monoclonal antibodies to bind cytotoxic agents to alloreactive cells are also feasible.[12]

Though the problems of graft-versus-host disease have not been satisfactorily overcome, several fresh ways of tackling it are being explored. Firstly, since some of the clinical manifestations of graft-versus-host disease may result from the accompanying infections, improved recognition and treatment of such infections should reduce the resulting mortality; more potent antifungal and antiviral agents are becoming available.[13]

Secondly, graft-versus-host disease itself induces profound immunosuppressive effects. Indeed, the regulation of antibody responses is disturbed after seemingly uncomplicated marrow transplantation but is still more profoundly disrupted in recipients with acute or chronic graft-versus-host disease. The immunosuppression in patients with this complication probably results from the excessive activity of suppressor T lymphocytes.[14,15] If confirmed, this abnormality should be amenable to appropriate treatment. Recent discoveries give another twist to the deceptively simple views of earlier years. Maturation of the bone marrow is known to be governed largely by the microenvironment created by endothelial and other stromal cells in bone marrow. Workers assumed that these cells were still of host origin even after successful marrow grafting. It now seems likely, however, that some immunosuppressive regimens promote the grafting of stromal cells derived from donor marrow rather than from the host.[16] Probably, therefore, the regulation of proliferating donor lymphocytes is more complex than had been imagined, and hence current strategies for controlling graft-versus-host disease and resulting infections are likely to prove too simplistic. Retaining some graft-versus-host reactivity may be beneficial in eliminating malignant cells surviving the initial treatment with *x*-irradiation and chemotherapy.[17]

Finally, in patients with malignant disease graft-versus-host disease may best be avoided by removing some of the patient's autologous marrow before chemotherapy and transplanting it later. So far this approach has been limited by the probability that the marrow will be contaminated by malignant cells. The introduction of monoclonal antibodies which specifically eliminate such contaminating cells offers the hope of circumventing this problem.[18]

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Data for management: the Körner Report

Health Service administrators need information on the numbers and types of patients using their hospital beds and wards, outpatient clinics, operating theatres, day-care facilities, accident departments, and so on. How and where they should get these data—a complex issue—has been studied for the past two years by an NHS/DHSS steering group chaired by Mrs E Körner, and its first report[1] has just been published.

The steering group was charged not only to "agree" but also to "implement and keep under review" the "principles and procedures to guide the future development of health services information systems." The introduction to the report explains that it had in mind the needs of those who "guide and manage the provision of health care," rather than those who actually provide the care—as well as much of the information. This emphasis on management was certainly reflected in the 19 places occupied by 22 people over the years: the Department of Health and Social Security itself filled four places, and

provided the secretariat of three; the National Health Service fielded at any one time three administrators, three treasurers, and three community physicians and one surgeon, one anaesthetist, and one nurse. Apart from Mrs Körner herself, the outside world was represented by the Registrar General and a professor of community medicine.

I have laboured this point that the focus of the inquiry seems to have been on the use of information in management, not in any way as a criticism (improvement in management is both possible and desirable) but to underline that the report must be judged in that context and not in relation to other uses of information in clinical medicine or clinical epidemiology. This first report is, furthermore, limited to "the information required by management about clinical facilities and departments in hospitals and the patients using them." Further reports are promised on information about community services, paramedical services, manpower, finance, patient transport services, and dental services, and the cheerful hope expressed that these "will fit together like a well-made jigsaw, and will accurately reflect the information needed by management to perform the complex tasks of efficient administration, effective planning and genuine accountability."

The Körner Report is a substantial and clearly written document of 219 pages. Its introductory section explains that it has focused on hospital-based activity at district level with a view to delineating the minimum set of data required by district authorities; some consideration is also given to the data appropriate for transmission to the regions and to the Department of Health and Social Security. The information needed for management is derived from three main sources—activity data, health services manpower data, and financial data. A King's Fund paper based on workshops held in March 1982 argued that manpower and financial data can be produced relatively easily from personnel and finance departments; the main problem is in collecting and processing data on clinical activity. This requires, on the one hand, the identification of patients, the categorisation of their illnesses, and the codification of what happens to them and, on the other hand, the analysis of facilities—wards, outpatient clinics, operating theatres, diagnostic departments—in terms of demand, work load, and performance. The scale of operation of the National Health Service makes this a formidable task.

So far as patients are concerned the report recommends an integrated information system for all patients admitted to a ward. The crucial question then is the "minimum data set" required. What is needed is a record in which the patient is clearly identified and which then accompanies him through different episodes of illness, which may mean a change of consultant, a move from one ward to another, or an operation, and which may be linked to other information about him. The solutions proposed for these various problems seem to be sensible and practicable. The patient will be identified by sex, geographical code of current home address, date of birth, and marital state—but not by name because of "concern about the holding of named information on central or regional computers" and "because the administrative output of the system will be in aggregated form." Admittedly, the report recognises that "in special circumstances a clinician may wish the name to be included and local provision should be made for this." Even though they do not sort out the John Smiths or the Mohammed Alis, names would at least distinguish twins of the same sex living at the same address, a not impossible happening. It seems to me a matter of fine judgment whether one makes an information system so open that no one will contribute to it, or so confidential that no one can get anything out of it; I suspect that in omitting names the steering group has gone some way towards lessening the clinical and epidemiological value of the system—a value which was not, however, their prime concern.

The recommendation that diagnostic data should be collected on all patients covered by the system is to be welcomed; its omission would make the scheme even more obviously a management exercise, thereby lessening its appeal to the active clinician. Both for the sake of analysing the use of his own unit and for the sake of his colleagues in epidemiology, however, he should accept the responsibility of making the diagnostic coding as accurate as possible.

What information about facilities is needed by management? Firstly, a special working group on the diagnostic services had earlier produced a discussion document which was on the whole well received. Annex IV to the present report suggests a "national vocabulary for diagnostic departments," but this relates only to radiology, nuclear medicine, and other forms of imaging and not to pathological services. As a rather crude indicator of work load for the pathology sections, a simple count of the number of requests received is suggested, though grouping of types of request on a cost basis is not excluded.

Information has to be collected on bed state, including an estimate of met and unmet demand. Whereas all admitted patients are to have the minimum data set recorded, the turnover of outpatients is larger by an order of magnitude—over 34 million attend each year. The numbers of patients attending the various clinics are clearly needed for management, but it would not be practicable to process information on each individual patient.

This is by any standard an important report, and to the extent that it can be implemented it could bring a welcome measure of order and integration into a system which is at present open to charges of inaccuracy and delay. So far, the proposals relate to hospital work and to management at district level. Clinicians are probably more concerned with the proposals for collecting and processing information on patients than they are likely to be with all the modalities of information on facilities, though they must of course be interested in those facilities for which they are directly responsible. Even at district level the flow of information envisaged will certainly call for mechanical methods of data processing; one must, however, concur with the important point made in the King's Fund paper that "Information technology is only exploited to the full when developments are information led, so that the information requirements must be identified first and only then a choice made from the wide range of technology available." The point could perhaps be made more simply—"Don't choose a computer until you know what you want to do with it."

One particular recommendation which concerns me is the very first one—"All nationally available data collected by facility returns should be aggregated on the basis of a financial rather than a calendar year." This could make international comparisons of morbidity and mortality additionally tedious, for, though these naturally relate to patients and not to facilities, the proposed British system presumably has the same time base for both.

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[1] National Health Service and Department of Health and Social Security Steering Group on Health Services Information. *First report*. London: NHS/DHSS, 1982.